

## Section 1.5 - Inequalities

### Interval Notation?

(a)  $x > 4$

(b)  $x \geq 4$

(c)  $x < 4$

(d)  $x \leq 4$

example 1:

Translate to an inequality:

5 fewer than a number is at least 12.

Bellwork: 9/20/12

Solve, graph, interval notation

$$\begin{array}{r} 3x + 17 \leq 5 \\ -17 \quad -17 \end{array}$$

$$\hline \frac{3x}{3} \leq \frac{-12}{3}$$

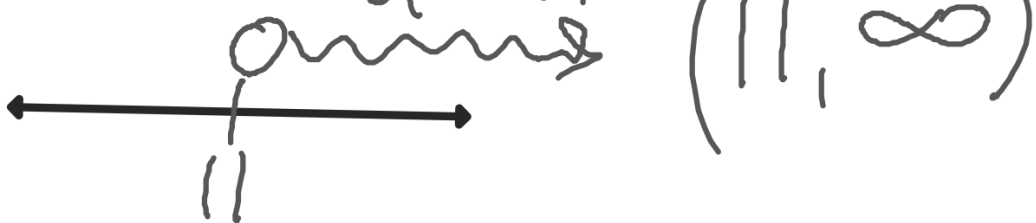
$$\boxed{x \leq -4}$$



$$(-\infty, -4]$$

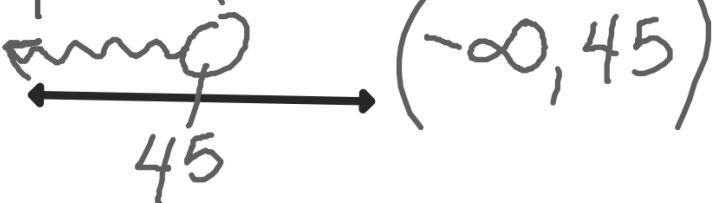
$$\begin{array}{r}
 8a - 15 > 73 \\
 +15 \quad +15 \\
 \hline
 8a > 88 \\
 \underline{8} \qquad \underline{8}
 \end{array}$$

$$a > 11$$



the quotient of a number and 3 is  
no more than 15.

$$\begin{array}{c} \left(\frac{3}{1}\right) \frac{x}{3} < 15 \left(\frac{3}{1}\right) \\ \hline x < 45 \end{array}$$



example 2:

Solve, graph, interval notation.

$$-3(2x-5) + 1 \geq 4$$

$$\begin{array}{r} \hline -3(2x-5) \geq 3 \\ \hline -6 \qquad \qquad -3 \\ \hline 2x-5 \leq -1 \end{array}$$

$$2(4x+1) + 3 > -3$$

example 3: A movie rental program offers two subscription plans. You can pay \$36 a month + rent as many movies as you like or you can pay \$15 a month plus \$1.50 per movie. How many movies must you rent in a month for the first plan to cost less than the second plan?

Hw

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$$36 < 15 + 1.50m$$



example 4: sometimes, always, or never?

Ⓐ  $-2(3x+1) > -6x+7$       Ⓒ  $6(2x-1) \geq 3x+12$

Ⓑ  $5(2x-3)-7x \leq 3x+8$

example 5: and vs. or (interval notation)

Ⓐ  $7 < 2x + 1$  and  $3x \leq 18$

Ⓑ  $7 + k \geq 6$  or  $8 + k < 3$





